MULTIFUNCTIONAL LOGISTICS OFFICER CORPS: SHOULD THE U.S. ARMY CONSOLIDATE THE OFFICER CORPS OF THE TRANSPORTATION, QUARTERMASTER AND ORDNANCE CORPS INTO ONE MULTIFUNCTIONAL BRANCH?

A MONOGRAPH
BY
Major Martin S. Wagner
Quartermaster

School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

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Major Martin S. Wagner

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Approved by:

_____ Monograph Director
LTC James E. Rentz, MMAS

_____ Director, School of Advanced
COL Robin P. Swan, MMAS Military Studies

_____ Director, Graduate Degree
Phillip J. Brookes, Ph.D. Program

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ABSTRACT

MULTIFUNCTIONAL LOGISTICS OFFICER CORPS: SHOULD THE U.S. ARMY CONSOLIDATE THE OFFICER CORPS OF THE TRANSPORTATION, QUARTERMASTER AND ORDNANCE CORPS INTO ONE MULTIFUNCTIONAL BRANCH?, by MAJ Martin S. Wagner, USA, 41 pages.

The logistics support structure of the U.S. Army has evolved continuously in order to provide efficient and effective support to Army forces. Logistics officers are critical in providing decisions that allocate support to Army forces. In the past, these logistics officers specialized in one of three basic logistics branches: Transportation, Ordnance or Quartermaster. Recent developments in doctrine, organizational change and technology require logisticians to understand the entire combat service support system. This monograph examines whether the U.S. Army should consolidate the officer corps of the Transportation, Ordnance and Quartermaster Corps into one multifunctional branch.

This monograph analyzes changes in: logistics doctrine, organizations, technology, and historical analysis of the efforts of other organizations to consolidate elements of there combat service support structure. This analysis will determine whether the conditions exist that support the formation of a multifunctional logistics officer corps and if this action can provide added efficiency to the U.S. Army.

The Army could consolidate the officer corps of the Transportation, Ordnance, and Quartermaster corps into a Multifunctional Logistics Officer Corps to gain efficiency in combat service support. The recent changes in doctrine, organization and emerging technology indicate that logistics officers are performing in this role now. Conducting the consolidation could combine resources of the three branches and result in a training program that would result in thoroughly trained multifunctional logisticians at the tactical, operational and strategic levels.

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CHAPTER I: INTRODUCTION

In "*Supplying War*", Martin Van Creveld defined logistics as the practical art of moving armies and keeping them supplied.[1] Quite simply, the logisticians of the Army are responsible for building and rebuilding the combat potential of the force by arming, fixing, fueling, moving and sustaining the army at the right place and at the right time.

The logistics support structure of the Army has been under continuous evolution since the Revolutionary War. Branches have been established as the need arose, and the primary missions and responsibilities of each have changed and overlapped during this evolution.[2] Three primary logistics corps have emerged: the Quartermaster Corps, the Ordnance Corps, and the Transportation Corps. Each of these individual branches contains an officer corps that is trained to carry out the specialized functions their branch must execute in order to sustain combat power on the battlefield. The common thread that binds these officer corps together is that they all provide leaders who must make decisions regarding allocating resources at the right time and place to the support the force.

Recent developments in logistics doctrine have led the Army away from a "supply-based" logistics system, where mountains of supplies are stocked at each echelon, to a "distribution-based" logistics system where supplies are introduced into the theater of operations as needed, and managed intensively from the time they leave the industrial base enroute to a specific location on the battlefield. Distribution-based logistics uses a combination of communications

and automation technologies, these networks provide Total Asset Visibility (TAV) and Intransit Visibility (ITV) critical to ensure efficient and effective distribution operations.[3] Total Asset Visibility (TAV) is the use of technologies to monitor the requisition and availability status of supplies within the theater of operations and back to the CONUS industrial base, while Intransit Visibility (ITV) is the use of technologies to track the location and movement of personnel and materiel throughout the world. Distribution-based logistics represents a new way of doing business. Velocity offsets mass, as echelons of inventory are replaced by managed flows of materiel.[4]

This fundamental change in operating practices blurs the lines of responsibilities between the basic logistics branches. Officers of the three primary logistics corps serve in a number of strategic, operational and tactical logistics positions where knowledge of each of the other branches is critical to making sound decisions in allocating resources. The Army has attempted to cross fertilize logisticians through the implementation of the Functional Area 90 (Multifunctional Logistician) designation. This designation allows an officer of the three primary branches to serve in multifunctional units, and to be exposed to the functions of the different branches. However, this designation does not guarantee service in multifunctional units nor does it ensure that an officer will receive the requisite training to provide competent multifunctional leadership.

In regard to the changes in logistics doctrine and the downsizing of the force, the focus of this monograph asks the research question whether the U.S. Army should consolidate the officer corps of the Transportation, Quartermaster and

Ordnance Corps into one multifunctional branch? This monograph examines the relationship of distribution-based logistics to the functions of the separate branches, the effect that emerging technology has had on the roles of each branch in providing logistics decision making, and the changes in organizations that provide logistics support on the battlefield. This monograph does not propose that there is no longer a need for certain types of specialty officers, nor is there a requirement to abolish the many Military Occupational Specialties (MOS) of the enlisted ranks, it does propose to examine the contributions of the separate logistics officers branches and multifunctional logistics officers to logistics decision making.

This monograph focuses primarily on the Ordnance corps, Quartermaster corps and the Transportation corps. Although there is relevance to medical supply (Class VIII) throughout the discussions in the different sections, the medical corps is not included in the subject matter of the monograph.

In chapter II, this monograph will address the specific changes to doctrine and technology to determine if they warrant a single logistics corps. This section examines the evolution of the Army of Excellence (AOE) into Army XXI and how organizational, doctrinal and technological changes require changes in decision making by logistics officers regarding the allocation of resources on the battlefield. Additionally, this chapter will examine the emergence of the training requirements for multifunctional logisticians.

Chapter III examines two examples of combining functions within logistics disciplines to gain efficiency. This section discusses the consolidation of U.S.

Army enlisted supply personnel from the 76 series Military Occupational Specialty (MOS) into the 92 series MOS. Additionally, this section discusses the consolidation of the British logistics officer corps (Royal Logistics Corps). This section will analyze what changes were made, what efficiencies were expected from the change and what lessons can be learned.

The conclusion of this monograph will make recommendations for or against a consolidated logistics officer corps based on the findings in Chapter II and Chapter III.

CHAPTER II: DOCTRINE, ORGANIZATION, TECHNOLOGY AND TRAINING

This chapter examines the shift of US Army logistics doctrine form supply-based or mass logistics to distribution-based logistics, the differences between the Army of Excellence organization and the Army XXI organization, the role of technology and how information has changed the role of the logistics leader, and how logistic officers are trained throughout their careers.

Section 1: Doctrine

Doctrine is the statement of how America's Army as part of a joint team intends to conduct war and operations other than war.[5] Logistics is the process of planning and executing the sustainment of forces in support of military operations. It includes the design, development, acquisition, storage, movement, equipping, distribution, and evacuation functions of supply, field services, maintenance, health service support, personnel and facilities.[6] Logistics officers must understand doctrine in order to make sound decisions that support the maneuver commander's plan. Changes to doctrine, organization,

and equipment can have a large effect on how the logistician supports the maneuver commander.

Logistics Characteristics

Successful logistics must be both effective and efficient.[7] Logistics operations must provide effective support while efficiently using constrained resources. Logisticians provide the human element in the logistics system and apply the five logistics characteristics found in Field Manual 100-5, *Operations* (1993) to provide efficiency and effectiveness to operations. The five characteristics are: anticipation, integration, responsiveness, continuity and improvisation and will be discussed below. Each one of these characteristics requires logisticians to apply the science of logistics, applying mathematical models based on historical data and the art of logistics, knowing how to integrate the entire system and fill gaps that science cannot fill, i.e., the use of intuition based on experience to solve problems. An experienced logistician who understands Army doctrine greatly influences the effectiveness and efficiency of logistics operations.

Anticipation - Accurate anticipation of requirements can enhance both the agility of the force and its ability to seize and retain the initiative and synchronize activities in depth.[8] Logisticians use models to determine "what might be," and use their personal experience as a litmus test to ensure that future requirements are addressed.

Integration - Tactical and operational success depend on fully integrated concepts of logistics and operations. Integration during planning ensures support of operations during execution.[9] Logisticians who understand the

problem set of the operational concept give the commander freedom of action while executing operations.

Continuity - During operations, committed forces require continuous supply and service support to sustain their fighting strength and agility.[10] Logisticians are constantly assessing the ability of their system to provide support to the maneuver commander. Detailed knowledge of how that system operates, where redundancy is required and where risk can be taken is essential to limiting lapses in support.

Responsiveness - The Logistics system must react rapidly in crises. Moreover, seldom will requirements for units and supplies be known.[11] Situational awareness is a key component to providing flexible support. The logistician must understand the capabilities of assigned units, what a particular change in the environment means potentially to future operations, and what the second and third order effects on other parts of the system will be. Situational awareness is a product of experience and using available technology.

Improvisation - Improvisation is the talent to make, invent, arrange, or fabricate what is needed out of what is at hand. Successful logistics operations adapt to changing situations.[12] This characteristic exemplifies the importance of a logisticians experience.

These five characteristics of logistics will be analyzed against the changes in doctrine, organization and technology to show how Force XXI changes require a different emphasis of these characteristics by the logistician.

Supply-based Logistics

Supply-based logistics or massed logistics finds its underpinnings in the industrial might of the United States. Armies of the United States have been able to mass large quantities of supplies at different echelons allowing the constant forward flow of supplies from higher echelons to lower echelons. In war, supplies are massed in a theater of operation creating large stockpiles that ensure overwhelming logistics superiority. Although this doctrine has been successful, this basis of supply has been inefficient in that large quantities of supplies were often not accounted for, consumed, or distributed to the right place at the right time. Army of Excellence Modified Table of Organization and Equipment (MTOE) units are organized in multifunctional units, combining the equipment and personnel of the Ordnance, Transportation, Quartermaster, and Medical corps in order to place specific capability at each echelon and allow the management and distribution of those large stockpiles. These units then support their respective echelon with their on-hand stocks and organic services and can access the stocks and services of adjacent units. Centralized command and control is provided in support operations cells, Materiel Management Centers and Movement Control Centers. Separate supply and transportation agencies became less important when all information about the requisition, distribution and disposition of an item resided in one place.[13]

However, the key element that logistic units lack, essential to providing efficient supply and service support of combat units, is information. Specific information regarding amounts, location and disposition within the theater of

operations classes of supply, and transportation availability is not available to one person or a groups of people able to make decisions, at least not in a coherent, understandable format. The many existing automated systems need experienced operators who can translate what the data means before a decision can be made. Additionally, the complexity of those systems does not allow effective cross training of skills among the different logistics disciplines. Systems that are not interconnected and require many hours of on-hand experience result in "subject matter experts" who are focused only on their specific commodity or service.

A recent example of supply-based logistics and the inherent problems previously discussed is Operation Desert Shield/Desert Storm. During these operations, massive quantities of supplies entered the theater of operations, many in containerized configuration. Tracking the location and inventory of these containers was inefficient, leading to many containers remaining unopened until after the conflict.[14] Officers in the provisional Theater Support Command did not have the tools to track effectively when supplies were arriving, where they were arriving, in what quantities and to whom they belonged.

This system of poor visibility and the tendency of logistics officers to become fixed in their particular logistics discipline was one of the factors leading to the establishment of the Multifunctional Logistician Functional Area (FA 90).[15] The intent was to code certain duty positions FA90 allowing officers from the logistics branches to serve in positions where they would be required to gain and have knowledge of disciplines other than their own basic branch. Functional Area 90

coded positions provided an opportunity for officers to serve in positions exposing them to other logistics disciplines. However, an officer coded with FA90 did not necessarily serve in a multifunctional unit because of the existence of specialized units within each logistics discipline. In 1993, the Army took their first step towards training multifunctional logistics officers by starting the Combined Logistics Officer Advanced Course (CLOAC). This course prepared Captains from the three primary logistics branches to serve in multifunctional units both as commanders and staff officers. Later improvements to this course included the requirement for students to complete Phase I (non-resident phase) of the Support Operations Officer Course before graduation.[16] The Support Operations Officer Course trained officers in the tactical logistics functions of arm, fuel, fix, man, move and sustain and was a good primer for officers that would be confronted with multi-discipline issues within the logistics field.

Distribution-Based Logistics

Distribution is that functional phase of logistics which embraces the act of dispensing materiel, facilities, services, and the process of assigning military personnel to activities, units or billets (JP 1-02). It includes all actions performed to deliver required resources (units materiel, personnel, and services) to, from and within a theater. Distribution is more than a logistics function; it is an operational art that encompasses all CSS disciplines and functions. It involves synchronizing all of them to generate the focused CSS that provides the right resources at the right time and place.

FM 100-10-1, Theater Distribution[17]

Simply put, distribution is not just managing what comes into a theater of operations but it is the function of how the system works to get those items in theater and to distribute them to the user. Distribution-based logistics exploits new technologies that allow, near real-time or real-time communication

horizontally and laterally within the theater of operations, as well as back to the Continental United States (CONUS) industrial base. Automation combined with communication resources provides the logistician the ability to know what resources exist in inventory, Total Asset Visibility (TAV), who ordered a specific item, if it is being shipped, and where it is physically located in the world by In-transit Visibility (ITV).

Total Asset Visibility is the capability for both operational and logistics managers to obtain and act on information on the location, quantity, condition, movement, and status of assets throughout the Department of Defense logistics system.[18] In-transit Visibility is the capability provided to a geographic combatant commander to have visibility of units, personnel, and cargo while in-transit through the Defense Transportation System. (JP 4-01.3)[19] These capabilities are part of the resources network of the distribution system.

The distribution system consists of a physical network and a resource network. The physical network includes the type, capability and quantity of fixed facilities and structures that support distribution operations. The resources network consists of personnel, materiel and machines that operate within and over the physical network of the distribution system.[20] These two networks are the distribution system infrastructure. A key facet to distribution-based logistics, unlike supply-based logistics, is to leverage technology to minimize what is actually needed in theater at any given time. Additionally, the logisticians, can take a more active role because of the improved detailed information they receive. Eventually, al logisticians --strategic, operational, and tactical -- will be

integrated throughout the supported CINCs battlespace. They will know what is going on from the factory to the foxhole.[21]

One of the key principles of distribution is centralized management. It involves the integrated end-to-end visibility and control of the distribution system capacity and distribution pipeline flow.[22] This control is provided by distribution managers in distribution management centers at each echelon. These management centers coordinate and synchronize the movement of supplies, personnel and equipment. The materiel and movement functions are executed by these organizations which are comprised of multi-disciplined staffs. This centralized management leads to the next key principle of distribution, optimize infrastructure.

Optimizing the infrastructure is the ability of the staff to use the finite capacity of the distribution system. Distribution managers are responsible for maintaining visibility of the infrastructure under their control, and to reallocate or acquire physical and resource network capabilities to meet challenging requirements.[23] These functions of centralizing management and optimizing infrastructure are performed by people. These people come from the three basic logistics branches and must have knowledge of the infrastructure they control and the resources that flow through that infrastructure. Distribution management centers create an environment where large amounts of information of different types are received for decision. Distribution-based logistics capitalizes on speed through the availability of information. The hidden assumption is that the increase in information velocity will result in rapid decisions by the logistician. A logistician

who does not have a basic understanding of multifunctional issues will trade that time trying to understand the nuances of the specific discipline, be it maintenance, transportation, or supply. It is therefore important that officers responsible for gathering information and making decisions are capable of understanding that information.

Section 2: Army of Excellence

The Army of Excellence logistics structure evolved from single branch support battalions such as supply and transportation battalions and maintenance battalions to multifunctional battalions such as Forward Support battalions (FSB), Main Support Battalions (MSB) and Corps Support Battalions (CSB). These units placed the different disciplines of supply, transportation, maintenance and medical support under centralized control. These units were responsible for providing synchronized combat service support to units they support. This synchronization of disciplines was resident at the commander and support operations officer level. The battalion was multifunctional; however, the companies were still functional in their capability. This type of unit required the development of officers who were capable of coordinating and synchronizing the different logistics functions without the advantage of a formal education process to prepare future field grade officers for this responsibility.

As previously stated, the requirement for multifunctional logistics officers, required the development of the Combined Logistics Officer Advanced Course (CLOAC) and the development of the Support Operations Officer Course. The intent of these courses was to expose company and field grade officers to the

doctrine and issues associated with all facets of combat service support. Information was now available using information systems that allowed and required an officer coordinating logistics functions to understand how those functions were related and how they supported one another. Combat service support was viewed as a system that required understanding of its subsystems.

Although units were multifunctional at the battalion level, and the Army viewed CSS as a system, the Army still operated on a supply-based logistics system as discussed earlier. This system of large stockpiles of supplies at different echelons positioned supplies closer to the units that would consume those stocks and did not require the same level of interface between the transportation function and the supply function as is required in distribution-based logistics. Operations Desert Shield/Desert Storm was an enlightening experience for the logistics community, as the Army conducted its largest operation since the Vietnam war in positioning a force and sustaining it. Large quantities of personnel, equipment and supplies arrived simultaneously in the theater of operations and required decisions on where they would go and how they would get there. The ability to "see" what was arriving as in distribution-based logistics was primitive, as was the ability to synchronize the movement of those resources.

Many CSS Standard Army Management Information Systems (STAMIS) existed then as now to manage logistical functions. A STAMIS is a computer system that automates management functions for classes of supply, transportation data and many other logistical functions. Several logistics

STAMIS will be discussed in the technology portion of this chapter; however, it is important to note that these systems are decidedly parochial in nature. Each branch, and branch subset, had independently developed their system because they felt their function to be unique.[24] Force XXI initiatives bring changes to organization, doctrine and training that will be discussed next.

Section 3: Force XXI Logistics

The Army's Force XXI Division represents a leap forward into the realm of 21st Century technology. The smaller Force XXI Division possesses greater lethality, and quicker mobility, as well as real time "situational awareness."[25] Situational awareness provides a complete, common, relevant picture of the battlefield for all commanders. This concept of situational awareness allows commanders to quickly mass combat forces and defeat a larger but less technologically advanced enemy.

The combat service support structure must therefore be able to project, receive and support this force to ensure success. CSS leaders at all levels must provide the foresight and responsiveness necessary to anticipate and maintain the division's operations tempo.[26] The CSS paradigm is shifting from a supply-based logistics system to a distribution-based logistics system through new technologies. The key concept is the availability of real-time information that allows logisticians to make rapid decisions concerning the allocations of resources on the battlefield. "To achieve [the necessary] agility and mobility, we had to get rid of all these stocks that we carry around with us on the battlefield. We had to change our logistics concepts so that we could keep up with the

maneuver commanders and allow them to maintain momentum."[27] The Force XXI distribution-based system eliminates most stockpiles substituting speed for mass. Logisticians control the destination, speed and volume of distribution with computer technologies such as ITV, advanced materiel management and advanced decision support system technology. This increased visibility of resources and ability to make rapid decisions has implications on the personnel that operate and manage these systems.

Structure

The basic building block of the Force XXI CSS concept is multifunctional modular units in direct support of combat units. The common, relevant battlefield picture provided by emerging technologies will allow the CSS commander to anticipate requirements, direct necessary movement of personnel, equipment and supplies and position them at the right place at the right time on the battlefield.

Theater Support Command

Above the Division and Corps a Theater Support Command(TSC) will replace the current Theater Army Area Command (TAACOM). This new unit will create a multifunctional and tailored support system that will enter the theater of operations early to control and support deploying forces and sustainment.[28] The TSC is a versatile command structure. It employs Early Entry Modules (EEMs) and functional follow-on command and control elements to provide support at the operational level.[29] The TSC is primarily responsible for developing a distribution plan in concert with the Army Service Component Command (ASCC) or Army

Forces Commander (ARFOR) and the functional commands. The support operations cell is the primary executor of this task. It contains a distribution management cell that orchestrates the distribution of all classes of supply and services and personnel movements supporting the deploying force. The support operations cell has specialized commodity areas as well as positions that are coded FA90. This section uses the experience of its personnel and the information provided by technological systems to provide information necessary to make decisions regarding the disposition of support within the theater of operations.

Division Support Command (DISCOM), Division Support Operations Office

The Division Support Command's (DISCOM) support operations section consolidates materiel managers, transportation coordinators, and operational planners to create a cell that can plan and execute support for the division. The Distribution Management Cell (DMC) provides the support operations officer TAV and ITV of all commodities, movements and units transiting the division area of operation. This section serves as a "fusion cell" for information. This information is then provided to the division support operations officer for decision. The division support operations officer position is an FA90 coded position. However, many of the commodity specific positions are coded for specialty officers. These positions provide the support operations officer with maintenance, supply and transportation expertise within the staff. The FA90 positions require experience in the continuum of logistics disciplines and in emerging automated technologies. The support operations office organization improves on the AOE organization by

providing the section overall control of distribution decisions. In AOE organizations, decision making and communication were diffused between the DISCOM operations officer (S3), the support operations section, and the Division Materiel Management Center (DMMC). Each organization had its own communication channels, and dissemination of information was unreliable.

Division Support Battalion (DSB)

The Division Support Battalion provides area support to the units in the division rear for Direct Support (DS) supply and maintenance. It provides transportation support to the entire division and it also provides reinforcing fuel and resupply support to the Forward Support Battalions (FSB). Unlike the AOE Main Support Battalion (MSB), the DSB no longer provides umbrella support to the FSBs for the other classes of supply.[30] The decrease of redundant stocks held in the division rear as a result of the tenets of distribution-based logistics increases the importance of the commander's situational awareness. The position codes for the support operations officer and the commander remain FA90 coded positions. The make-up of the battalion remains identical to AOE MSBs in that the companies are functional companies; maintenance, transportation motor transport, medical and quartermaster.

Forward Support Battalion (FSB)

Forward Support Battalions have undergone the most significant changes when comparing organizational structure with AOE units. The FSB still provides direct support to brigade level combat teams, with the FSB commander serving as the brigade commander's battle logistician. The FSB provides all logistical

support, and coordinates and synchronizes the entire spectrum of supplies and services for the maneuver brigade.[31] The FSB is composed of the Headquarters and Headquarters Company (HHC), the Medical Company, the Base Support Company (BSC), and the Forward Support Companies (FSC). The BSC, HHC and FSCs all require multifunctional trained officers, while the medical company responsibilities and officer requirements have not changed significantly from the AOE organization.

Headquarters and Headquarters Company (HHC)

This company provides the command, control and administration support for all organic and attached elements of the FSB. The company retains the normal staff sections and command group found in AOE units, but also contains a robust support operations section responsible for coordinating logistics support and providing distribution management for the maneuver brigade.[32] The support operations officer and the battalion commander duty positions remain coded as FA90 positions.

Forward Support Company (FSC)

The Forward Support Company (FSC) is where we see the most significant changes of the Force XXI CSS redesign. FSCs have been created in the Forward Support Battalions to provide all of the maneuver battalion logistics support while maintaining a surge capability.[33] The CSS elements organic to the maneuver battalions were combined with direct support CSS elements under the "centralized CSS concept" to form the FSC. The new FSC is as mobile as the unit it supports providing greater flexibility for the maneuver commander. The

FSC provides all classes of supply, food service, medical support and tactical field maintenance (Direct Support and unit) to itself and the battalion it supports. The most interesting aspect of the reorganization is that the headquarters section is responsible for the command and control of all CSS elements in support of the designated maneuver battalion combat team. This squarely places the responsibility of logistics decision making and coordination on the company commander and platoon leaders of the company which has its own support operations section.

Base Support Company (BSC)

The multifunctional Base Support Company (BSC) provides logistics support to the brigade rear area (less medical support and medical supply) and limited back-up reinforcing support to the FSCs. The BSC is comprised of a headquarters platoon, supply and transportation platoon, engineer support platoon, base maintenance platoon and a forward repair platoon. The differences between the BSC and FSCs is that the BSC maintains 1/2 day operational requirements for the maneuver brigade, supports the brigade with ammunition in the brigade Ammunition Transfer Point (ATP), maintains the brigade general supply, petroleum and lubricants, barrier materiel and spare parts Authorized Stockage Lists, provides onsite direct support repair teams not covered by the FSC, and supply and service support to the engineer battalion supporting the brigade. The headquarters command and control structure and tasks are identical to those performed by the FSC headquarters.

Division Aviation Support Battalion (DASB)

The Division Aviation Support Battalion (DASB) provides direct support to the aviation brigade and the division cavalry squadron. The DASB is composed of a headquarters and supply company, ground maintenance company, and an aviation maintenance company. The headquarters section includes the normal staff sections and a support operations section. The supply company, ground maintenance company and aviation maintenance companies are functional in nature. It is important to note that the battalion does require multifunctional expertise in the support operations section for the application of distribution-based logistics concepts.

The divisional logistics organizations described above result in significant changes in responsibilities of logistics officers. Support operations cells from the DISCOM headquarters down to the FSC require officers that can assimilate information from a variety of sources and decide based on knowledge of distribution-based concepts and their knowledge of CSS functions to divert resources to where they are needed on the battlefield. This organization requires a greater reliance on officers that understand the component parts of the CSS system, a multifunctional logistician.

Section 4: Technology

The concepts in the Force XXI division revolve around the increased battlefield awareness offered by information technology systems. Currently, logisticians must be aware of many different automated systems that are essentially "stovepipe" systems, systems that do not share information. These single purpose automation systems have led to specialization among the three

basic logistics branches relative to the Standard Army Management Information System (STAMIS) they use. Force XXI emerging technologies are intended to create a seamless logistical information system that requires officers to have an understanding of the information that is managed, how to access it and how it relates to decision making.

Current Systems

There are a variety of CSS STAMIS systems that perform specific logistical functions. This section describes some of these systems to illustrate the single-purpose nature of many of these systems, how some of these systems provide some degree of consolidation of information, but overall, how these systems require a great degree of experience with the specific system. These systems were developed to manage certain commodities or services and relied on the expertise of the branch which primarily developed the system. Officers assigned to units with this capability spent a large amount of their time trying to master the mechanics of the particular system, leaving limited time to explore or even be exposed to other logistics automation systems. Included with the description of each system is the primary user by branch. An important point to remember, regardless of the primary user, is that officers serving in multifunctional positions such as command and support operations positions must understand what the information produced by the system *means*. These systems are:

* Standard Army Ammunition Management System (SAAS) - accounts for ammunition on the battlefield. (Used by the Ordnance Corps.)

* Standard Maintenance System (SMS) - Used by direct support maintenance units to manage the maintenance workload. Additionally, the data compiled by these systems passes through support operations offices, and materiel management centers up through Department of the Army level. SMS is linked to the Standard Army Retail Supply System-Objective allowing the passage of data that results in the requisition of parts for maintenance jobs. (Used by Ordnance Officers.)

* Standard Army Retail Supply System - Objective (SARSS-O) - used by direst support supply level and above to manage the requisitioning process and receipt, storage and issue of supplies at the warehouse level. (Used by Quartermaster and Ordnance officers.)

* Unit Level Logistics System (ULLS) - ULLS has several variants, ULLS-G (Ground) manages maintenance and repair parts at the organizational level, ULLS-A (Air) does the same for aviation, and ULLS-S4 accounts for organizational equipment and receipt, storage and issue of general supplies at the organizational level. (Primarily used by Quartermaster-trained personnel.)

* Standard Property Book System - Redesigned (SPBS-R) - Tracks the receipt, storage and issue of major end items. (Normally used by trained Quartermaster personnel at the division property book office of the Division Materiel Management Center but must be understood by any commander who will become a responsible officer for property.)

*Transportation Coordinator-Automated Command and Control Information System (TC-ACCIS). This system provides load and manifest information for

unit moves. This information is used down to the unit level to plan and execute movements during peacetime and crisis situations. (This STAMIS was developed by the Transportation Corps but is used by unit movement officers regardless of their branch.)

The systems discussed in this section have in some cases matured to the point where information is shared. However, these systems do not provide overall integration to information required by a multifunctional logistician to make decisions regarding the complete system. These systems require specialization in their many functions and the time involved in training a user to be proficient often precludes mastery of more than one system. This time factor and the basic branch of the officer leads the officer to the systems that are primarily aligned with the functions of that branch. This can lead to a single-track focus by a junior officer, creating gaps in the knowledge of the officer that must be filled when that officer is placed in multifunctional positions later in their career.

Force XXI Systems

There are over 130 systems to be fielded in the digitized force.[34] The most important development is not the abolition of the many STAMIS systems, but rather the ability to integrate many of the current systems allowing multifunctional logistics officers to have greater awareness of the overall logistics situation of the unit. While these new systems integrate some of the old STAMIS, there will still be a requirement for knowledge of certain STAMIS at the FSC level due to fielding plans for theses systems.

*Combat Service Support Control System (CSSCS) - CSSCS is not a commodity manager but receives information fed from each of the individual STAMIS described above. That means that CSSCS is supposed to be the one system that brings the STAMIS together to share information.[35] CSSCS is intended to permit echelons with this capability to manage all commodities. However, this system is not currently designated to be fielded below the FSB level. This will mean that the multifunctional logisticians in the support operations section in the FSC will have to have assured communication with the FSB support operations section. This system is a step in the right direction of providing comprehensive situational awareness to the logistician responsible for allocating resources.

* Force XXI Battle Command, Brigade and Below (FBCB2) - FBCB2 is a digitized system that provides real time, and near real-time battle command information to combat, combat support, and combat service support units. This system will eventually be fielded in each headquarters and fighting system. This capability will allow the logistician the increased battlefield awareness to influence logistics decisions.

*Global Combat Service Support System-Army (GCSS-Army) - This system will eventually replace SMS and SARSS. GCSS-Army, "will be the principle and comprehensive...enabler for the Total Army for interfacing and integrating information and...systems across the CSS mission Area."[36]

Section 5: Training

This section describes the basic career training of logistics officers and how they prepare for the different types of positions they can expect to serve in during their career. CSS officers are branched in one of the three primary branches from different commissioning sources, or can branch transfer from combat arms branches at virtually any point in their career.

Lieutenants are commissioned in the Ordnance, Transportation or Quartermaster Corps and attend an Officer Basic course where they receive training in basic tactics, leadership and the fundamentals of their basic branch. This training prepares these officers to serve in platoon leader positions and is specialized within the disciplines of their basic branch.

When these officers become captains, they attend the Combined Logistics Officer Advanced Course (CLOAC) where they receive, multifunctional logistics training designed to prepare them to serve as company commanders and staff officers. During this course, these officers are now required to complete the Phase I (non-resident phase of the support operations officer course). The support operations officer course was developed as a stand-alone course to expose officers to the different CSS disciplines and prepare them for service as support operations officers.

The CLOAC course and completion of the resident phase of the support operations course is the last formal training for CSS officers in multifunctional logistics other than service in those types of units.

Officers who branch transfer from other branches, may or may not get to attend CLOAC but are required to complete the support operations officer course

in order to serve in that type of position. These officers must make up the training difference with practical experience gained at a unit.

Section 6: Conclusions

This section has examined how changes in doctrine, organizations and technology have influenced the way multifunctional logistics officers must operate in order to provide effective and efficient support on the battlefield.

Supply based logistics required less multifunctional focus by logisticians except at critical nodes such as materiel management centers and support operations sections. The supply system traded precision and a smaller footprint for mass allowing for redundancy in the system. Officers in their individual logistics disciplines became experts in those areas at the expense of knowledge in the other disciplines. Limited visibility of logistics operations and complexity of the information systems required the limited focus of subject matter experts.

Operation Desert Shield/Storm was a milestone in the development of multifunctional logistics officers. Limited visibility of supplies and services and the compartmentalized nature of information led the CSS community to implement multifunctional training at the company grade and field grade level for officers under the guise of the CLOAC course and the support operations course.

Distribution-based logistics brings a more systematic approach to support on the battlefield by limiting stocks and improving the visibility of stocks and the delivery of those stocks through improved technology. This system lends more flexibility to combat operations and requires agile and experienced officers to

assimilate information on the entire CSS system and make decisions regarding resources. The speed gained by distribution-based logistics depends on well-trained officers who understand the entire CSS system and can use their experience to exploit the time gained through technology.

Army of Excellence units centralized many of the individual disciplines at the battalion level but did not effect multifunctional training below the battalion level. Support Operations Officers were responsible along with commanders for synchronizing the efforts of each branch specific capability. Officers were able to specialize in their specific discipline due to the organization of the unit and the manner in which it provided the support to its customer base. Multifunctional officer development was not a principle concern until the aftermath of Operation Desert Shield/Storm.

Force XXI CSS redesign increases situational awareness through technology, reorganizes units into multifunctional logistics units down to company level and centralizes many previously unit level functions of CSS at the FSC. These changes require that junior officers are trained in multiple logistics disciplines in order to understand what technology is telling them, and how their decisions affect the entire spectrum of CSS support to the supported unit.

Technology is a key component of decision making. Existing systems have allowed logisticians to foster a single discipline mentality because of their complex nature, and because of their inability to provide a big picture view for decision makers. This has caused the Army to need subject matter experts to collect, compile and explain what these systems are telling the organization.

Evolving technology used in Force XXI units will mitigate some of these requirements. Systems are being developed that will allow logisticians to have a larger view of CSS as a complete system. This improvement of technology coupled with the changes to organizations requires an officer who has a large bank of experience in multifunctional logistics operations and can navigate the automated systems that exist to support CSS decision making.

Overall, changes to doctrine, organizations and technology require a logistician capable of understanding all of the CSS functions and capable of applying the five logistics characteristics. The changes in doctrine, organization and technology have caused a change in the meaning of multifunctional logistician and require these trained officers to be present throughout the depth of strategic, operational and tactical logistics positions.

	AOE Organization/ Supply-Based LOG/ Current Technology	**Force XXI Organization/ Distribution-Based LOG/ Emerging Technology**
Anticipation	Less Push System Redundancy Limited Situational-Awareness	More Pull System Less Redundancy Greater Situational Awareness
Integration	All operations must be integrated	Same Technology Permits Greater situational Awareness of maneuver units
Continuity		Same as above
Responsiveness	Less Redundancy of System	More Less Redundancy in system
Improvisation	Same as above	Same as above

Figure 1.

The figure above is a subjective analysis of the effects of organizational, doctrinal and technological change on how logistics officers could view the application of the five characteristics of logistics.

The combination of AOE organization, supply-based logistics and current technology provided a system based on large stocks of supplies and redundant capability in services. Additionally, the lack of situational awareness required less finesse and more "brute force" in providing CSS to supported units. This analysis does not imply that logistics officers did not have to apply the five characteristics, but does imply that less emphasis was required than in the Force XXI paradigm due to more redundant capability and less situational awareness.

In the Force XXI paradigm, more anticipation is required due to a longer pipeline for support. Even with greater situational awareness, situational awareness improves integration with the supported units operations, and more responsiveness and improvisation are required due to less redundancy in assets.

The logical conclusion is that more pressure is placed on the logistics officer to understand the operational picture presented and provide rapid and innovative decision making to provide the operational commander CSS on time and at the right location. This requires a well trained officer capable of understanding the multiple sources of information that spans the CSS continuum.

CHAPTER III: ANALYSIS OF HOW TO CHANGE

This section presents two examples of consolidation of specialties to gain increased efficiency of services in combat service support. These examples are presented to show the factors influencing the consolidation, how the

consolidation was conducted and to evaluate the efficiency and effectiveness of the consolidation.

The first example is the consolidation of the 76 series enlisted supply MOSs into the single MOS of 92A, which are part of the U.S. Army logistics system and is subordinate to the Quartermaster Corps. This example is presented to show how similar, yet diverse MOSs were consolidated to improve support to the Army. Although these are enlisted MOSs, the utility lies in why the change occurred, how it was planned, how training was implemented and what shortfalls still exist as a result of the consolidation.

The second example is the Royal Logistics Corps of the United Kingdom. this example focuses on an officer corps and will discuss what recent experience, force structure changes and doctrinal changes caused the consolidation of their officer corps.

Section 1: 92A (Automated Logistical Specialist) Consolidation

As the army began its reduction in forces in 1991, all elements of the Army had to determine how they would continue to accomplish their missions with a reduced force structure. With the advent of improved CSS STAMIS systems and systems on the horizon, the Quartermaster Center and School had been conducting analysis on how to improve supply support while improving the career progression of enlisted soldiers serving in Quartermaster MOSs.[37]

The 76 series MOS provided supply support to units at the DS and organizational level. The MOSs were 76C, 76P, 76V, and 76X. These MOSs provided the clerks (76C) that ordered parts in the motor pools (Class IX) and

managed Prescribed Load Lists (PLL) , provided subsistence (76X) support (Class I) to the Army in both garrison and in the field, and provided warehousing (76P and 76V) for the Authorized Stockage Lists (Classes II, III(P), IV, VII, and IX) of Divisions and Corps. These MOSs were all similar in the fact that they dealt with one class of supply or another. The basic manual methods of supply management were the same as the automated systems. Class I manual methods were the same, however automated systems were drastically different than the other classes of supply.

Career progression for these soldiers posed a similar problem to that of single disciplined logistics officers who later in their careers had to be cognizant of multifunctional logistics. Soldiers would be trained in one of the MOSs and serve in that MOS until generally the E-6 level where they would change MOS to one of the other 76 series MOSs. For example the 76C (clerk) who performed the function of ordering parts in the motor pool would progress to 76Y (Supply Specialist) at the E-6 level. In this example, the soldier who had ordered parts in the motor pool was expected to transition to operating a supply room where ordering parts was important, but just one facet of the supply sergeant's responsibilities. This trained the soldier in a particular area, and then created the expectation for the soldier to provide NCO technical expertise in a different discipline. Promotion rates tended to be lower in these NCO ranks.[38]

The career progression issue, technology improvement and funding for training of the separate MOSs led the Quartermaster Corps to consider consolidating these MOSs. The consolidation would allow a soldier to be trained

with the general skills applicable to these MOSs. The soldier would leave the institutional training base with the basic knowledge to report to a unit and work in any of the disciplines. The soldier would gain experience in the specific area they worked, and would be rotated through assignments to the other disciplines, thus resulting in a well-rounded logistical specialist. There was an expectation that units would rotate soldiers through the different disciplines during what was called the internship phase.[39] As these soldiers progressed throughout the NCO ranks, they would be prepared to serve in positions that exposed them to all 92A-related issues. The plan for consolidation was to begin training new soldiers attending Advanced Individual Training (AIT) and updating the curricula of the Advanced NCO training course, as well as mobile training teams that gave an overview to mid-grade NCOS of what the AIT soldiers would be taught.

Results of the consolidation were mixed. The two most obvious results of the plan were that soldiers were not thoroughly trained in any one area and required more training at the unit than in the past, by NCOs who did not have the experience to teach. NCOs were expected to arrive at a unit trained in the discipline of the position they would fill. NCOs who had been trained as subsistence specialists were now expected to supervise a warehouse.[40] A useful facet of the consolidation was the interface between the Quartermaster Corps, the schoolhouse and units in the field. Units could provide feedback concerning the AIT training. This feedback has led to numerous changes in the 92A AIT program of instruction. One result has been to change the 92A position (ULLS clerk) in the unit motorpool to the 92Y MOS. This change will mirror the previous

progression of the 76C to the 76Y MOS.[41] This leads to more expertise without changing the current MOS structure.

The 92A consolidation was a cost-saving and efficiency oriented plan. The consolidation shows that an assessment of the needs of the Army were considered and that changes in doctrine and organization were a driving factor in the development of this plan. The plan showed flexibility to the needs of the Army through modifications to training programs and assignment to positions in the field.

There were both short-term and long-term shortfalls of the consolidation process. A short-term issue was the timing of training NCOs versus the influx of brand new 92A soldiers from AIT requiring extensive training at the unit. The result was a training gap where senior NCOs were not ready to demonstrate multi-discipline expertise.[42] The consolidation fell short in terms of forecasting the effects that emerging technologies and changes in support organizations would have on the training focus. Force XXI technology and consolidation of organizational support structure at the FSC have caused recurring changes to 92A AIT. However, this does demonstrate the flexibility built into the system, but also demonstrates that time is required for the system to adjust to the change.

The key points in this example were the definition of the change, the why and how, and the flexibility in the plan to account for the future.

Section 2: Royal Logistics Corps

The Royal Logistics Corps (RLC) was a result of experience gained from the Falkland Islands war and Operation Desert Shield/Storm. The creation of the

RLC is the latest change in the continuing reduction and downsizing of the British Military forces and promises to provide a new focus and efficiency for logistics in the British Army. The reorganization resulted from a review of CSS functions called the logistics support review.[43] The RLC is primarily responsible for supplying, arming, feeding, fueling, clothing and transporting the field Army.[44] The RLC does not provide maintenance support and medical to the British Army. Maintaining the Army is the responsibility of the Royal Electronics and Mechanical Engineers (REME) and medical support is provided by the Royal Army Medical Corps. The RLC embraces all aspects of logistics, based on the fundamentals of multi-modal transportation, warehousing and distribution management, and underpinned by an expanding program of inventory control and asset tracking systems.[45]

Experience was the driving force behind the changes to the British logistics structure. British logistics units were very similar in organization to U.S. Army AOE organizations. The Commando logistic regiment of 3 Commando Brigade, Royal marines was composed of (1) Headquarters Squadron for command and control; (2) Medical Squadron; (3) Transport Squadron; (4) Workshop Squadron - maintenance support; and an (5) Ordnance Squadron. These units consisted of enlisted and officers that were specialized in that particular field. The officers were trained in their designated field and had little multifunctional training. Officers were not well trained in integrating the tactical plan with the logistics plan. The understanding of integrated logistics planning by the various disciplined officers was lacking in some cases. Understanding the capability of

other units in terms of people and equipment caused numerous delays in support to forward units.[46] Transportation management was poor prior to the battle for Port Stanley.

Logistics experiences in the gulf during Operation Desert Shield/Storm were similar. The Gulf War, in particular, highlighted the need for an improved logistics system to meet the increased demands of modern, high intensity armored operations.[47] Officers were still trained in single disciplines and lacked extensive training in other areas. The big difference between the Falkland Islands Campaign and Desert Shield/Storm was that during the latter, the British Army conducted combined logistics operations with the U.S. VII Corps. British Army logistics officers found it difficult to interface with coalition logistics officers due to their limited scope in logistics functions. There was a small pool of multifunctional logistics expertise in the British Army and it was stretched to its maximum capacity.[48] Many logistics officers continued to be focused on their particular commodity or service and in some cases there was redundant overlap in logistics responsibilities.

The result of these experiences was the conduct of the Logistics Support Review. This was an overarching study of the current logistics system in the British Army designed to look at the optimal force structure and the adoption of better business practices.[49] Results of the study indicated a move towards greater integration of national forces in multinational force elements would pose problems of a different kind for military planners in all areas: command and control, strategic mobility, and logistics support.[50] The Logistics Support Review

concluded that the structure of the officer corps must maximize the capabilities of the personnel available, i.e., do more with less.

These results prompted the British Army to reorganize the support organizations in the Army and to change institutional education programs to support multifunctional logistics officer training. The changes to structure were affected by creating the RLC and assigning it the responsibilities of supplying, arming, feeding, fueling, clothing and transporting the field Army. These functions were separated from the medical and maintenance functions, however, officer training also underwent change in order to broaden the perspective of logistics officers to be able to plan across the entire spectrum of CSS functions. This restructuring combined with the British Army's regimental affiliation system has created the necessary stability for these changes to be implemented.

Lessons learned from this consolidation are: (1) the impact of budget concerns on how and when the Army should restructure; (2) recognizing the importance of past experience and when change is needed; and (3) implementation of change to improve performance of an organization.

First, the British, much like Americans constantly debate what the size of their military forces should be. The British realized that they would have to apply better business practices in order to justify the relevance of their Army. Consolidating the logistics corps limits redundancy in systems and develops experienced officers capable of comprehensive logistics planning.

Secondly, the British used their experience in the Falkland Islands and Desert Shield/Storm to guide their change. The British experience In Desert

Shield/Storm highlighted shortcomings in their logistics doctrine and recognized the increasing role that coalition warfare would have in the future. The decision to restructure their organizations improves their potential for interoperability with U.S. and other forces.

Finally, as a result of the two lessons learned above, the British made the conscious decision to change their structure in order to become more efficient. The main purpose of the consolidation was to improve CSS to their Army.

CHAPTER IV: CONCLUSIONS

The Army could consolidate the officer corps of the Transportation, Ordnance, and Quartermaster corps into a Multifunctional Logistics Corps (MLC) to gain efficiency in combat service support. By merging these mutually-dependent support functions the army could more efficiently manage the combat service support (CSS) distribution functions of receipt, storage, maintenance, and transportation from the point of receipt to the point of issue.[51] This monograph has shown that the Army can gain efficiency by centralizing logistics officers under one corps whose focus is training officers to think about all aspects of CSS on the battlefield.

The impact of doctrinal, organizational and technological changes have produced an environment requiring officers who understand how all CSS functions create a synergistic effect on the battlefield. The shift of Army logistics doctrine from supply-based logistics to distribution-based logistics creates the requirement for logisticians at all levels of war who can understand the volumes of information provided by new technology, understand the implications on each

element of CSS and provide sound decisions that rapidly allocate resources where needed on the battlefield. Logistics officers providing direction within a distribution system must understand the flow of each commodity and service and understand what that information means in terms of the tactical plan.

Force XXI CSS Redesign, stressing modularity and multifunctionality down to the company level, requires an unprecedented level of expertise in company grade officers. The placement of a support operations section in the Forward Support Company not only requires the company commander to be competent in multifunctional logistics operations, but also requires the assigned Lieutenants to have experience that transcends their basic branch. Although the company commander receives this type of training at the Combined Logistics Officer Advanced Course, there is no mechanism in place to train the Lieutenants. Even AOE organized units require the support operations officers to be multifunctionally trained. These units also serve as a training ground for future support operations officers; however, there is no mechanism that ensures officers receive the opportunity to meet the intent of the FA90 designation. FA90 provides career management of officers so they will become proficient in managing logistics operations across the spectrum of logistics.[52]

New technologies are also playing a role in how Army logisticians operate. The ability to know where supplies are, in what quantity, when they will arrive and the ability to change the destination and quantity of those shipments requires officers who will be in a position to affect that change to understand how

the CSS functions operate together as a system. These technologies require understanding, which means training.

The review of the 92A consolidation and the consolidation of the Royal Logistics Corps are examples of why to consolidate the U.S. branches and both cases demonstrate the need for change based on fiscal constraints and changes in operating practices. The U.S. Army could save money through a consolidation by reducing overhead for training sites and temporary duty pay. Additionally, streamlining the headquarters staffs of the three branches could reduce the number of personnel working in those headquarters and redundant functions that are performed by all three logistics branches.

What does the Multifunctional Logistics Officer Corps (MLOC) look like?

This final section is one recommendation on how the multifunctional logistics officer corps could be organized, who it would affect and what its responsibilities could be. The overall concept would call for a logistics corps that includes all enlisted MOSs, warrant officer specialties and officer specialties. This corps would be subdivided to provide management for the enlisted, warrant, and commissioned officers. As discussed in Chapter II, the enlisted and warrant officers would not be consolidated, leaving the expertise at that level. The next section will discuss the organization of the officer corps.

Organization/Functions

The multifunctional logistics officer corps would manage multifunctional officers (most officers), and specialty coded officers such as Army Watercraft, Explosive Ordnance Officers, Subsistence Specialty Officers, Mortuary Affairs

Officers and Petroleum Officers. These specialties would be maintained as required due to functional command requirements and technical aspects of the positions requiring officer leadership. These officers would require separate management that would be provided by the multifunctional logistics officer corps. The headquarters structure would be arranged with personnel management capability, doctrine development and the many other subfunctions that are organic to the basic branches.

Training

The Army's logistics structure must be able to provide support under various conditions without compromising readiness. Training technically and tactically competent multifunctional logistics officers at every level supports this objective.[53] The multifunctional logistics officer corps would establish tiered training that ensures officers are prepared for the position they are entering. The possible gates for training are: a Multifunctional Logistics Basic Officer's Course, retention of CLOAC and completion of phase I of the support operations officer course, and the incorporation of joint logistics concerns. Other courses could be designed to focus on special areas such as transportation and supply, in order to increase awareness of their relationships in the CSS system. These courses could be mobile training team modules or follow on courses after the basic or advanced courses.

The findings of this monograph indicate that the role of CSS officers is changing from an officer who is specialized in one specific area to one that is well versed in the wide spectrum of CSS functions. Logistics officers are

required to provide expertise on many different disciplines while serving in positions at different levels. Recent changes to training programs indicate Army logisticians are aware that the combination of functions is required.

A Multifunctional Logistics Officer Corps could allow the logistics officer corps to align training with emerging doctrine, organization and technology. This would provide efficient and effective support to U.S. Army forces by providing well trained and experienced logistics officers capable of serving in CSS positions at any level.

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